

MEETING MINUTES
LIGNITE RESEARCH COUNCIL

July 21, 1999
Kelly Inn, Bismarck, ND

MEMBERS (or their authorized alternates) PRESENT:

Curtis L. Blohm	Knife River Corporation
John Bluemle	North Dakota Geological Survey
Mark Bring	Minnkota Power Cooperative
Kevin Cramer	ND Department of Economic Development & Finance
John Dwyer	Lignite Energy Council
Ron Haugen	North Dakota Farmers Union
Mike Hummel	BNI Coal, Ltd.
Marlowe Johnson	Otter Tail Power Company
Michael Jones	Energy & Environmental Research Center
Douglas C. Kane	MDU Resources Group, Inc.
Brandon Krogh	Minnesota Power
Al Lukes	Dakota Gasification Company
Mark Nygard	Coal Conversion Counties Association
Dean Peterson	The North American Coal Corporation
Dave Schmitz	Basin Electric Power Cooperative
Martin Schock	North Dakota Department of Health
Valdon Swanson	North Dakota Farm Bureau
John Weeda	Great River Energy
Gordon Westerlind	Great River Energy

OTHERS PRESENT:

Lyndon Anderson	Lignite Energy Council
Randy Crooke	The Falkirk Mining Company
Jim Deutsch	North Dakota Public Service Commission
Karlene Fine	Industrial Commission of North Dakota
Vicki Gilmore	Lignite Energy Council
Dave Kaufman	The Falkirk Mining Company
Dennis Laudal	Energy & Environmental Research Center
Carmen Miller	North Dakota Attorney General's Office
Russ Nelson	Great River Energy
Clifford R. Porter	Lignite Research Council
Dan Stepan	Energy & Environmental Research Center
Andy Stewart	En-Rock, Inc.
Mike Swenson	Energy & Environmental Research Center

Lignite Research Council (LRC) chairman John Dwyer called the LRC meeting to order on July 21, 1999, at Kelly Inn, Bismarck, North Dakota.

Approval of Minutes – 2/17/99 LRC Meeting

Dwyer asked for a motion for approval of the minutes of the February 17, 1999 Lignite Research Council meeting. Dean Peterson so moved; Marlowe Johnson seconded. Motion carried.

Financial Summary

Karlene Fine discussed the financial summary for the 1997-1999 North Dakota Lignite Research, Development and Marketing Program, summarizing how the Lignite Research Program funds were used in the 1997-1999 biennium and what funds will be carried forward to the 1999-01 biennium. For the 1999-2001 biennium, Fine said \$500,000 has been set aside for marketing feasibility studies. The

carryover of \$295,800, plus \$500,000 that the Legislature allocated for non-matching grants, totals \$795,800 for marketing feasibility studies. For small research projects, the budgeted amount for 1999-2001 is \$1,951,478; for demonstration projects: \$13,047,010. In the small research project area, the carry forward of obligated funds is \$547,500; unobligated funds: \$316,188; estimated 1999-2001 production: \$1,020,000; additional 1997-1999 production carried over to 1999-2001: \$67,790. Available for the upcoming biennium for small research projects: \$1,403,987 (\$1,951,478 minus \$547,500 for committed funds).

Fine said the commitment on the outstanding bond issue is \$2,141,152.

Demonstration projects: \$995,842 carryover of unobligated funds; carryover of obligated funds: \$7,171,200; available for the upcoming biennium: \$3,484,658.

As of July 1, 1999, there is a total of \$5,388,636 available for all three project areas for the 1999-2001 biennium. This breaks down to \$500,000 for marketing feasibility studies (non-matching), \$1,403,978 for small research projects (matching), and \$3,484,658 for matching demonstration projects (matching).

4/15/99 LRC Executive Committee Meeting: Lignite Vision 21 Project

Dwyer summarized the April 15, 1999 LRC Executive Committee meeting and some of the actions that have taken place since then. He explained that in the past, the full LRC has authorized the LRC Executive Committee to allocate and recommend non-matching marketing studies for approval by the Industrial Commission. At its 4/15/99 meeting, the LRC Executive Committee recommended funding for five non-matching marketing studies as the initial phase for the Lignite Vision 21 Project.

Dwyer summarized the Lignite Vision 21 Project. The Industrial Commission suggested that the enhancement side of the Lignite Research and Development Program be addressed to help the lignite industry grow. The Lignite Vision 21 Project, developed from a series of meetings with policymakers and from Department of Energy Secretary Bill Richardson's 1999 visit to North Dakota, will emphasize lignite's strengths. The project will be a proactive effort by the state to revitalize the lignite industry by increasing growth and production, adding tax revenues, and identifying technologies that may lead to more lignite-based electrical generation for North Dakota. The state will partner with the DOE and others. North Dakota is allocating \$250,000 from the 1997-1999 biennium and \$500,000 of non-matching funds from the 1999-2001 biennium for the Lignite Vision 21 Project. The project will be a principal focus of the lignite marketing program over the next two years.

Program Updates

Clifford Porter said that the following lignite marketing feasibility studies are summarized in the meeting book: "Technology Development and Marketing Plan for the Lignite Vision 21 Project"; RFP 99-01: "North Dakota Electric Transmission Study", which will be done by the AAB company; RFP 99-02: "Environmental Enhancements to Increase Use of North Dakota Lignite", which will be done by Research Data International; RFP 99-03: "A Study of Lignite-Based Advanced Technology Systems" (contract not yet awarded); and LMFS-99-30 for "Alternative Extraction Technologies" (contractor: Dakota Gasification Company).

Porter reiterated the available funding for the 1999-2001 biennium: \$500,000 for non-matching marketing feasibility studies, \$1,403,978 for small research projects (matching), and \$3,484,658 for demonstration projects (matching).

He said that brochures are now available summarizing information from LMFS-98-26 ("Analysis of Kyoto Protocol's Impact on Agricultural Production in Minnesota, North Dakota, and South Dakota") and LMFS-98-28 ("Update to The Lignite Marketing Feasibility Study – Sinor '92").

Porter said that the kick-off for the Lignite Vision 21 Project involves the following non-matching lignite marketing feasibility studies: LMFS-99-30 ("Alternative Lignite Extraction Technologies"); LMFS-99-31

("Technology Development and Marketing Plan for the Lignite Vision 21 Project"); RFP-99-01 ("North Dakota Electric Transmission Study"); RFP-99-02 ("Environmental Enhancements to Increased Use of North Dakota Lignite") and RFP-99-03 ("A Study of Lignite-Based Advanced Generation Systems").

Porter referred to the information in the meeting book listing marketing feasibility studies for all projects from July 1, 1997 to June 30, 1999; 10 small research projects with approved funding and signed contracts; small research projects from July 1, 1997 to June 30, 1999; and demonstration projects with funding approved and contracts signed. From July 1, 1987 to June 30, 1999, there has been \$19,590,510 obligated for demonstration projects whose total project cost is \$227,916,985.

Porter said small research environmental projects received the most funding from the Lignite Research Fund during the 1997-1999 biennium. The byproducts area (primarily coal combustion byproducts) received the second highest amount of funding, while combustion was third and the mining & reclamation area was fourth. No projects were submitted in the area of beneficiation.

Porter said in this grant round (XXXIV) there are five requests totaling \$542,756. For Grant Round XXXV, there are two requests: Implementation of Regional Lignite Energy Marketing Plan (request for \$975,000) and North Dakota Children's Health Study (request for \$75,000). Porter said the latter study is being proposed by the North Dakota Department of Health and the lignite industry. Porter said that because the total requested for grant rounds XXXIV and XXXV is \$1,592,756, while the estimated total available funding for small research projects for the 1999-2001 biennium is \$1,403,978, he is recommending reduced funding for some of the Grant Round XXXIV proposals.

Grant Round XXXIV Grant Applications

Porter summarized technical peer reviewers' comments and technical advisor recommendations for funding for the five Grant Round XXXIV proposals.

LRC-XXXIV-A: "Demonstration of North Dakota Lignite Flyash in Haulroad Construction"; Submitted by: The Falkirk Mining Company; Principal Investigator: David Kaufman; Request for: \$59,426; Total Project Costs: \$118,852; Timeframe: 18 months.

Porter said the objective of this project is to demonstrate benefits of using flyash in construction of unpaved roads. Coal Creek Station flyash will be blended with spoils and subsoil and used in the construction of subgrade and subcut for a mining haulroad at The Falkirk Mine.

Porter recommended the project be funded, subject to three contingencies: 1) Funding not to exceed \$29,713; 2) Performance and environmental monitoring of three years; and 3) Cost and performance testing comparisons between flyash and Portland cement.

Conflict of interest parties are Great River Energy, The Falkirk Mining Company and The North American Coal Corporation. Three of the four technical peer reviewers recommended funding may be considered for the project; the fourth recommended it be funded.

The average weighted score given the project by the technical peer reviewers is 171.5 out of 250 points. Mark Nygard asked Porter what formula he used to determine the lower recommended funding level for the project.

Porter said that because there has been an increase in demand for funds from the Lignite Research Fund, there is no longer the luxury of recommending full funding requests for all projects, especially when there have been many demands for funds from certain priority areas.

Andy Stewart spoke in support of the project. Doug Kane asked if the project would go forward if it did not receive funding at the full level requested. David Kaufman said it would not proceed unless the \$59,426 is received.

LRC-XXXIV-B: “Mercury Speciation Sampling at Great River Energy’s Stanton Station”;
Submitted by: Energy & Environmental Research Center; Principal Investigator: Dennis L. Laudal; Request for: \$44,000; Total Project Costs: \$135,998; Timeframe: 8 months.

Porter said the objective of this project is to meet mandated requirements of the U. S. EPA Information Collection Request, determine the mercury mass balance across the Stanton Power Plant (particularly the air pollution control system), and determine the forms and abundance of mercury emitted from the Stanton Power Plant. Conflict-of-interest parties are Great River Energy and Energy & Environmental Research Center. Two of the three technical peer reviewers recommend funding to be considered, and one recommends the project be funded. As technical advisor to the LRC, Porter recommended that Great River Energy and EERC reconsider the decision not to sample the solids removed in the EPS from Stanton Station’s Unit 1.

Dennis Laudal spoke in support of the project. He said that both EPRI and DOE regard this as an important project.

LRC-XXXIV-C: “Lignite Testing in an Advanced High-Temperature, High-Pressure Transport Reactor Gasifier”;
Submitted by: Energy & Environmental Research Center; Principal Investigator: Michael Swanson; Request for: \$249,970; Total Project Costs: \$749,910; Timeframe: 18 months.

Porter said the objective of the project is to test North Dakota lignite in a novel gasifier as part of an advanced integrated gasification combined cycle (IGCC) electric-power generation system. Kellogg-Brown & Root are developing the advanced gasifier design at the EERC. Goals of the IGCC system are a net efficiency of 45%, SO₂ and NO_x at 1/10 of NSPS, air toxic emissions below Clean Air Act levels, capital cost of less than \$1,200/kW and electrical generation costs of 80% of conventional pulverized coal costs. Porter recommended funding at a reduced level of not more than \$125,000 which must be matched with \$125,000 of industry cash contribution. Porter said that all of the commitment from the industrial participants is in-kind. He has three concerns with the project: 1) It is difficult to achieve commercial viability with a low or medium Btu gas; 2) All of the commitment from the industrial participants is on an in-kind basis; and 3) This is another project receiving DOE funds but the DOE does not include lignite in the project.

Conflict-of-interest parties are the EERC, Dakota Gasification Company, Minnesota Power, Otter Tail Power, MDU Resources Group, Great River Energy, and Northern States Power.

Two of the three technical peer reviewers recommended fund, and the third recommended funding may be considered. The reviewers gave the project an average weighted score of 200 out of 250 points.

The principal investigator, Michael Swanson, spoke in support of the project. Mike Jones said that EERC hopes this project might provide an opportunity to work with DOE to show the advantages of using lignite.

Kevin Cramer asked what the likelihood is of EERC’s partners coming up with the \$125,000 cash match. Jones said EERC has not yet had the opportunity to ask all of the partners, but Jones believes it is unlikely the cash match will be met.

LRC-XXXIV-D: “Powdered Activated Carbon from North Dakota Lignite: An Option for Disinfection By-Product Control in Water Treatment Plants”;
Submitted by: Energy & Environmental Research Center; Principal Investigator: Daniel J. Stepan; Request for: \$30,000 ; Total Project Costs: \$160,000; Timeframe: 18 months.

Porter said the objective of the project is to evaluate the use of lignite-derived powdered activated carbon to remove naturally occurring organic matter from raw water prior to disinfection. Removing

naturally occurring organic matter should result in reducing the formation of trihalomethanes and haloacetic acids during the chlorination-disinfection step. Porter recommended the project be funded. Conflict-of-interest parties are EERC and Northern States Power. (NSP is a member of Red River Water Management Consortium, from which the project has received a cash commitment for industrial matching funds.) All four technical peer reviewers recommended the project be funded. They gave the project an average weighted score of 194 out of 250 points. Porter recommended the project be funded. Porter said the original request from EERC was for \$60,000. He advised EERC to lower the request to \$30,000 and find \$30,000 in cash contributions, which EERC found from Red River Water Management Consortium. Porter also recommends that the project description incorporate the suggestions of technical peer reviewer 99-28 to include cost in the decision matrix.

Principal investigator Daniel Stepan spoke in support of the project.

LRC-XXXIV-E: “Demonstration of Lignite Ash for Feedlot Surfaces”; Submitted by: Energy & Environmental Research Center; Principal Investigator: Debra Plughoeft-Hassett; Request for: \$159,360; Total Project Costs: \$531,360; Timeframe: 3 Years.

Porter said the objective of this project is to demonstrate the benefit of North Dakota lignite coal combustion byproducts on feedlot surfaces. EERC, North Dakota State University Carrington Research Extension Center and Agricultural & Biosystems Engineering Department propose to demonstrate the use of North Dakota lignite ash for surfacing feedlots. Conflict-of-interest parties are EERC and Great River Energy. The technical peer reviewers' average weighted score for the project is 196 out of 250 points. Two of the reviewers recommended the project be funded and two recommended funding may be considered. Porter recommended the project be funded, contingent upon: 1) the livestock weight gain and performance be included in the reporting matrix; 2) environmental monitoring includes an assessment of aquifer sensitivity; 3) organization and milestone charts are prepared to show lines of communication, responsibilities of the various organizations and principal investigators; and 4) letters of commitment for \$159,360 cash contribution for the industrial matching funds are obtained by November 1, 1999.

Porter has received letters in support of the project from the North Dakota Stockmen's Association and the North Dakota Milk Producers Association.

In the absence of the principal investigator, Mike Jones spoke in support of the project. He said that the project would involve approximately 200 head of livestock per ton of ash per year. Dwyer asked Jones if EERC would be able to obtain the cash contributions to match the \$159,360 request. Jones answered affirmatively.

Motions Regarding Revision of LRC-XXXIV-C Contingency

Concerning proposal LRC-XXXIV-C, Al Lukes moved that the funding request be for \$125,000, but not contingent on matching funding of \$125,000. Dwyer explained that the motion would mean deleting the words “with the condition that \$125,000 of the match funding be a cash contribution” from the following sentence on the ballot in reference to LRC-XXXIV-C: *LRC Funding to be provided: \$125,000 with the condition that \$125,000 of the match funding be a cash contribution.* The motion was seconded by Dean Peterson; motion carried. Lukes said this project has other possibilities, including the technology necessary for carbon sequestration if the need arose for mandated carbon sequestration.

Doug Kane asked Michael Swanson if all testing previously proposed for the project would be accomplished if the cash piece is reduced to \$125,000 from the Lignite Research Fund. Swanson said that two 200-hour tests had been planned, but reduced funding would allow only one such test. Mike Jones said proposal LRC-XXXIV-C had the highest average weighted score of any of the five Grant Round XXXIV proposals.

Kevin Cramer said he opposed the motion. Dwyer called for a vote on the motion. The motion was defeated, thus maintaining the condition for LRC-XXXIV-C as stated on the ballot. Mike Jones proposed a separate motion to eliminate the condition and to restore the funding request of \$249,970 that was originally requested by the EERC in its proposal for LRC-XXXIV-C; seconded by Cramer. Doug Kane asked if there will be enough Lignite Research Fund money to fund the proposal at the amount of the original request. Dwyer said the Industrial Commission in the past has accepted recommendations from the LRC to transfer dollars from the demonstration projects side to the small research projects side. Current guidelines from the Industrial Commission call for 75% of the funds to be allocated for demonstration projects and 25% for small research projects. Dwyer called for a vote on Jones' motion; motion carried.

Dwyer asked if anyone wished to discuss conditions or recommendations for other Grant Round XXXIV proposals. There was no further discussion about proposal LRC-XXXIV-B, for which Porter recommended that Great River Energy and EERC reconsider the decision not to sample solids removed in the ESP from Unit 1.

LRC-XXXIV-A Contingencies

Concerning LRC-XXXIV-A, Dwyer asked for discussion about the three conditions (contingencies) recommended by technical advisor Porter. The proposer, The Falkirk Mining Company, agreed to the third condition concerning cost and performance testing comparisons with Portland cement, but that the testing be done in the laboratory. Contingency 1 calls for funding in an amount not to exceed \$29,713; the proposer requested \$59,426. Contingency 2 calls for performance and environmental monitoring of three years; the proposer requests this monitoring be done for 18 months. Concerning contingencies 1 and 2, Gordon Westerlind moved that the proposal be funded at the full requested amount of \$59,426, and that performance and environmental monitoring be done for up to three years if required by the North Dakota Department of Health. Seconded by Dean Peterson; motion carried.

Doug Kane said if the LRC passes funding requests in excess of what is available in the small research projects area, he will make a motion that the LRC request the Industrial Commission to transfer funds from the demonstration projects area to the small research projects area.

"North Dakota Children's Health Study" Proposal

There was no discussion about agenda item 5.F, the proposal titled "North Dakota Children's Health Study". Dwyer said the proposal will not be submitted until Grant Round XXXV (September 1, 1999).

Legislative Council Studies

Dwyer said two Senate Concurrent Resolutions (SCR 4030 and SCR 4050) from the 56th Legislative Assembly impact the Industrial Commission and the LRC. SCR 4030 directs the Legislative Council to study the management responsibilities of the Industrial Commission (IC), the mission and location of each entity within and under the direction of the IC, the membership of the IC, and the voting structure of the IC. During the interim, there may be media coverage concerning SCR 4030 and the interim committee assigned to study it. Dwyer said he and Karlene Fine may be commenting to the media about the IC and the Lignite Research Program.

SCR 4050 directs the Legislative Council to study the feasibility and desirability of implementing a grant preapproval process for every state agency, except institutions under the State Board of Higher Education. Dwyer said SCR 4050 requires all grants involving federal funds to be approved by the Office of Intergovernmental Assistance. The study may impact EERC. An interim committee will study the grant processes being utilized if the grants involve federal funds.

Next Lignite Research Council Meeting: Grant Round XXXV Deadline

Dwyer said the next grant round application deadline is September 1, 1999, and the next LRC meeting is scheduled for 11:00 a.m. October 26, 1999 at Radisson Inn, in conjunction with the Lignite Energy Council annual meeting.

Dwyer asked the LRC to consider recommending to the IC that Lignite Research Program funds be reallocated as follows: Instead of 25% of the funds, the small research projects' portion of the program would receive 45% of program funds, and demonstration projects' funding allocation would decrease from 75% to 55 % of program funds. Dwyer said this would mean another \$870,000 for the small research projects area. Kevin Cramer made a motion to recommend to the Industrial Commission that the demonstration projects' funds be reduced by \$870,000 and the small research projects area be increased by that amount, thus making the split 45% of program funds for small research projects and 55% for demonstration projects. Seconded by Al Lukes; motion carried. Dwyer said that when the Lignite Research Program began, the split was 80% for demonstration projects and 20% for small research projects. The 75/25 split has been in effect for the last two years.

Ballot Results

The LRC cast confidential ballots to recommend or not recommend the Industrial Commission fund the five Grant Round XXXIV proposals.

The balloting results were as follows:

LRC-XXXIV-A: Fund: 14; Do Not Fund: 5

LRC-XXXIV-B: Fund: 18; Do Not Fund: 1

LRC-XXXIV-C: Fund: 15; Do Not Fund: 4

LRC-XXXIV-D: Fund: 18; Do Not Fund: 1

LRC-XXXIV-E: Fund: 16; Do Not Fund: 2

Confidential session re: LRC XXXV-A: "Implementation of Regional Lignite Energy Marketing Plan"; Submitted by Lignite Energy Council; Principal Investigator: John W. Dwyer; Request for: \$325,000 annually; Total Project Costs: \$650,000 annually (\$1,950,000 = 3-Year Total); Timeframe: 3 Years.

Pursuant to North Dakota Century Code 54-17.5-06, Dwyer requested a motion for the LRC to go into confidential session concerning LRC-XXXV-A: "Implementation of Regional Lignite Energy Marketing Plan". Curt Blohm so moved; seconded by Mike Hummel. Motion carried. Guests were excused from the LRC meeting.

Dwyer asked for a motion for the LRC to recommend to the Industrial Commission that the grant application reports for which the confidentiality request was received in relation to "Implementation of Regional Lignite Energy Marketing Plan" be determined to be confidential pursuant to NDCC 54-17.5-06. Dean Peterson so moved; seconded by Curt Blohm. Motion carried.

Dwyer requested that all copies of the confidential proposal for LRC-XXXV-A be returned to Karlene Fine at the end of the LRC meeting. He turned the chairmanship of the LRC meeting over to Doug Kane, vice chairman of the LRC, and then made a presentation about background information summarizing the proposal.

Dwyer asked the LRC to recommend that subject to independent technical reviews of the proposal, the LRC Executive Committee be given the authority to decide whether or not to recommend proposal LRC-XXXV-A to the Industrial Commission. Curt Blohm so moved; seconded by Gordon Westerlind. Motion carried. The LRC Executive Committee will meet on July 29, 1999 at the Lignite Energy Council in person or via conference call to consider recommending the proposal to the IC. The IC meeting is scheduled for July 30, 1999.

Adjournment

There being no further business, the meeting was adjourned.

Vicki Gilmore, Recording Secretary
